

## **An Exploratory Study of LMX Relationships in Virtual Teams: Leaders Perspective**

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### **Abstract**

The prevalence of virtual teams has surged in recent years. Despite the numerous benefits associated with virtual teams, they also present challenges, particularly for effective leadership. This paper explored the development of LMX (Leader-Member Exchange) relationships within virtual teams. We adopted a qualitative inductive approach, focusing on the leader's perceptions and experiences of LMX relationships in the context of virtual teams. Our data was obtained from managers (N = 12) having prior experience in leading virtual teams. Thematic analysis of the interviews revealed three overarching themes – leaders' expectations from LMX relationships, nuances of virtual media, and navigating and adapting to the complexities of the virtual environment. Our results contribute to both LMX theory and Social Information Processing theory. Further, the findings have practical implications for organisations and leaders.

Keywords: LMX Theory, Virtual Teams, Social Information Processing Theory, Thematic Analysis

Word Count: 5189 (Excluding Tables and References)

Track: Leadership and Leadership Development

## Introduction

A virtual team comprises geographically dispersed members who collaborate electronically with minimal in-person contact (Malhotra *et al.*, 2007). The last few decades have seen a tremendous increase in the use of virtual teams by organisations, and this trend is expected to persist in the future (Dulebohn and Hoch, 2017). Organisations gain multiple advantages from virtual teams, such as distributing work globally, entering new global markets, accessing international experts and talent regardless of location, and reducing expenses by decreasing travel between sites (Morrison-Smith and Ruiz 2020). Workers can also benefit from independence, adaptability, and shorter commute times (Dimitrova, 2003). However, virtual teams face challenges in utilising technology, asynchronous communication, establishing guidelines, and fostering connections and collaboration among members from diverse locations, time zones, cultures, and languages (Schulze and Krumm, 2017).

Virtual teams can pose significant challenges for leadership (Bell and Kozlowski, 2002). Due to reduced co-presence, leaders may have limited influence and access to information regarding the team's status, progress towards goals, and overall functioning (Zaccaro and Bader, 2003). Leaders who manage distributed teams must have the ability to establish trust and develop relationships with their geographically dispersed team members without the benefit of physical proximity (Dulebohn and Hoch, 2017). A high-quality relationship with the leader, i.e., leader-member exchange (LMX), is associated with several positive outcomes for followers, such as high levels of responsibility, access to resources and influence in decision-making (Graen and Uhl-Bien, 1995).

A high degree of electronic communication creates ambiguity and uncertainty, making it harder to build connections, understand others, and communicate clearly (Gibson and Gibbs, 2006). Given these challenges, it is important to understand the dynamics of LMX relationships within virtual teams. However, as Varma *et al.* (2022) pointed out, relatively scant research has been conducted in this specific context. Drawing on LMX theory (Graen and Uhl-Bien, 1995) and Social Information Processing theory (Walther, 1992), this article sought to understand leaders' perspectives of LMX relationships. We used a qualitative inductive research method to investigate our research question, "How do leaders perceive and experience LMX relationships in virtual teams?". The structure of the paper will be as follows. We first provide a review of the theoretical framework for this study. The subsequent sections discuss the research methodology and findings. We then discuss the theoretical and practical implications of the findings, followed by a section on study limitations and directions for future research.

## Literature Review

### LMX Theory

LMX theory is a relationship-based leadership approach centred on the interactions between leaders and followers (Graen and Uhl-Bien, 1995). The main tenet of this theory is that through different social exchanges, leaders form relationships that are unique with each subordinate (e.g., Dansereau *et al.*, 1975). This approach represents a stark departure from traditional leadership theories that assume leaders follow a uniform leadership style with all their subordinates. LMX theory interprets the leader-member dyadic relationship as the unit of analysis. This way, it views leadership as a reciprocal exchange between the leader and member to achieve mutual goals (Martin *et al.*, 2018). Leader-member relationships typically fall in the high-to-low-quality continuum. Low-quality LMX consists of exchanges that are mainly task-oriented and transactional. On the other hand, high-quality LMX goes beyond the terms of formal employment contracts and is characterised by mutual trust, respect, and obligation (Graen and Uhl-Bien, 1995). LMX literature maintains that LMX quality has a bearing on

important individual and organisational outcomes, including task performance, organisational citizenship behaviours, job satisfaction and turnover intentions (e.g., Gerstner and Day, 1997; Illies *et al.*, 2007; Martin *et al.*, 2016).

Graen and Scandura (1987) investigated the relationship development process between leaders and followers in three phases – role finding, role making and role implementation. LMX relationship begins with a focus on fulfilling contractual obligations for both parties ("role finding"). The follower's initial performance, ability, and competence are crucial in establishing the initial LMX relationship (Dienesch and Liden, 1986;). The degree to which members fulfil early task requirements signals their worthiness to the leader. The role-finding stage typically happens during the socialisation of a new member in the organisation and is crucial in the LMX process (Nahrgang and Seo, 2015). As the relationship progresses to the next stage ("role-making"), both participants within the dyad collaborate to establish the nature of their relationship and set behavioural expectations for different situations. In high-quality exchanges, both partners contribute resources valued by the other and perceive the exchanges as fair. These exchanges encompass tangible and intangible resources, including information, influence, tasks, support, flexibility, and attention (Graen and Scandura, 1987). As time progresses, the relationship may transition to the concluding phase known as role routinisation, characterised by mutual trust, respect and obligation (Graen and Uhl-Bien, 1995). During this phase, the leader and member actions become interlocked.

In virtual teams, leaders have less daily influence and access to information on their team members' progress (Huang *et al.*, 2010). In addition, leaders may find it challenging to implement suitable managerial interventions related to conflict resolution, work motivation, performance, and trust in distributed teams that are important for establishing high-quality LMX relationships (Martin *et al.*, 2016). Wong and Berntzen (2019) found that leaders face obstacles in building high-quality LMX relationships with their followers in virtual teams. Their research indicated that in situations with high electronic dependence and task interdependence, transformational leadership negatively correlated with LMX quality. Gajendran and Joshi (2012) investigated how leaders of globally dispersed teams facilitated team member involvement in decision-making. They found that a high-quality LMX relationship can motivate team members to contribute to geographically dispersed teams by decreasing ambiguity and establishing a psychological connection to the team. Hill *et al.* (2014) discovered that the strength of the positive relationship between LMX and psychological empowerment is moderated by the extent of electronic communication, with greater use of electronic communication associated with a stronger relationship.

Previous research on LMX has primarily focused on evaluating the quality of the working relationship from the subordinate's point of view (Paglis and Green, 2002). However, Zhou and Schriesheim (2010) have raised concerns about the generalisability of such research, as findings from the subordinate perspective may not apply to managers. In fact, a meta-analysis conducted by Gerstner and Day (1997) found only a modest correlation between supervisor and subordinate ratings of LMX measures. This result highlights the difference in how leaders and subordinates perceive the same relationship. These findings challenge the prevalent dyadic level of analysis in LMX research (Dansereau, 1995). Zhou and Schriesheim (2010) found that leaders and their subordinates emphasise different aspects of their working relationships, leading to different descriptions of the relationship. While leaders focus more on task-oriented dimensions, subordinates prioritise socioemotional aspects of LMX relationships. As a result, scholars have proposed that it is more appropriate to theorise and test LMX at the individual level (Brower *et al.*, 2000; Uhl-Bien *et al.*, 2022).

### **Social Information Processing Theory**

Culnan and Markus (1987) argued that computer-mediated communication (CMC) lacks nonverbal cues present in face-to-face communication, which are important for regulating interaction, perceiving communication partners, and understanding social context. Several theories categorised as "cues filtered out" approach to communication, e.g., social presence theory (Short *et al.*, 1976), lack of social context cues hypothesis (Sproull and Kiesler, 1986), and media richness theory (Daft and Lengel, 1986) have found CMC to be less socially oriented and less personal than face to face communication.

The theory of Social Information Processing Theory (SIPT) (Walther, 1992) offers a relational approach to the interpersonal effects of CMC interactions. SIPT refers to how communicators process social identity and relational cues using different media (Walther, 2015). The model assumes that communicators in CMC are driven to develop social relations (Walther, 1992). When there is an anticipation of future interactions, it prompts communicators to enact more relationally positive communication (Walther, 1996). Communicators can adapt to the limitations of the communication medium and use whatever cues are available to form impressions and develop relationships (Walther, 2015). However, the limited bandwidth of CMC means that the rate of social information exchange is slower than face-to-face communication, requiring more time for relationship formation (Walther, 1992). Overall, the theory emphasises the importance of adapting to the constraints of the medium to cultivate relationships and create positive impressions in CMC.

Recent research (e.g., Korzynski *et al.*, 2021; Kozminski *et al.*, 2022) has used SIPT to argue that effective leaders cope with informational constraints by obtaining information from various sources. SIPT can offer useful insights to understand LMX relationships in virtual teams. Drawing on SIPT, we argue that leaders will want to form LMX relationships even in the absence of face-to-face communication. However, due to the constraints of virtual communication, leaders will need to invest more time and effort into building these relationships. Thus, we expect leaders would have to devise novel workarounds/ strategies to navigate the complexities of virtual media while nurturing LMX relationships in virtual teams.

### **Research Methodology**

A qualitative approach was adopted for this study. With a few exceptions (e.g., Tse and Troth, 2013; Mishra and Shukla, 2021), qualitative methods have been limited in LMX research. However, qualitative methods can provide a nuanced understanding of LMX relationships. As Tse and Troth (2013) argue, "qualitative methods can provide a deeper understanding, supported by much richer descriptions, about how individuals actually perceive and experience high-quality and low-quality relationships that they form with supervisors" (p. 273). While Tse and Troth's (2013) study focused on the perspective of subordinates in LMX relationships, our study aimed to understand the leader's standpoint.

### **Participants**

The sample consisted of managers with experience in managing virtual teams. Twelve participants representing industries like Energy and power, ITES, SAAS Technology, Automobile, E-Commerce, and Professional Services were interviewed. Among them, three were females, and nine were males. Five were married, and seven were not. The average age of the respondents was 31.2 years. The average work experience was 8.65 years. A demographic summary has been provided in Appendix - I. The purpose of the study was explained to participants, and informed consent was taken. The participants were told their information would be used only for research purposes. To maintain anonymity, participant names were disguised with codes. In reporting the interview data, we identify participants by

assigning two relevant characteristics: participant number and gender. For example, the notation [P4, M3] indicates a quote from a male participant, while [P2, F1] indicates a female participant. The inclusion criteria for the participants were as follows: (1) prior managerial experience, (2) managed virtual teams for at least one year and (3) willingness to participate.

### **Data Collection**

Data was collected using semi-structured interviews. The interview protocol is provided in Appendix – II. The questions focused broadly on five areas – (1) demographic information, (2) the frequency and use of technology-based tools for communication, (3) attributes considered while hiring and evaluating team members, (4) the effect of virtuality on working relationships with team members, (5) interventions taken to manage relationships with team members. The interviews lasted an average of 48.74 minutes. All interviews were audio-recorded with the permission of the participants. The transcription of 10 hours and 56 minutes of audio recording generated 177 pages of single-spaced text (Times Roman, 12 font size).

### **Data Analysis**

The analysis was inductive in nature and was carried out manually, without the use of software. We followed a thematic analysis approach (Braun and Clarke, 2006). "Thematic analysis is a method for identifying, analysing and reporting patterns (themes) within the data" (Braun and Clarke, 2006, p. 79). Thematic analysis is a flexible method not linked to any pre-existing theoretical framework (Clarke and Braun, 2013). There are six stages involved in thematic analysis (Braun and Clarke, 2021) – (i) Data familiarisation and writing familiarisation notes; (ii) Systematic coding across the data set; (iii) Generating initial themes from coded and collated data; (iv) Developing and reviewing themes; (v) Refining, defining, and naming themes; (vi) Writing the report.

The first step involves getting familiar with the data. The interviews were conducted either face-to-face or on the phone. These interviews were audio recorded with permission and subsequently transcribed verbatim. The second phase involved systematic data coding. Code is conceptualised as an analytic tool used by researchers to develop (initial) themes (Braun and Clarke, 2021). Thus, the initial coding is based on the researcher's interest during the first step. The importance of context, i.e., virtuality, in the formation of LMX relationships was established from the initial familiarisation of data. Further, the importance of LMX relationships to the leaders seemed important. A total of 78 codes across the data set were identified in this phase. The third phase involved generating initial themes from the coded and collated data. Themes are multi-faceted crystals that capture multiple observations or facets (Braun and Clarke, 2021). The various dimensions discussed by the participants were collated, compared with each other and subsequently categorised.

The fourth phase involves reviewing the above themes and checking them for internal and external heterogeneity (Patton, 1990). External heterogeneity is ensured by verifying that each theme is distinct from the other. For internal homogeneity, all data extracts within a theme should be coherent. In the fifth phase, the aim was to define, refine and name the themes to capture the essence of the theme. We chose to report all the themes that were relevant to our research question, not only those mentioned by a certain percentage of respondents. Hence, our approach is more interpretive than positivistic (Bluhm *et al.*, 2011), and we engage in description and explanation rather than calibration (Lee, 1999). The excerpts were independently indexed into the three themes identified from the analysis. Appendix III depicts the data structure of this research. Finally, in the sixth phase, the written report is produced.

## Findings

The analysis revealed a total of three overarching themes – (i) Leader's expectations from LMX relationships, (ii) Nuances of the virtual environment, and (iii) Navigating and adapting to the complexities of the virtual environment.

### Leader's Expectations from LMX Relationships

This theme captures the expectations of leaders from LMX relationships. We found participants reflecting their expectations around three broad sub-themes – (i) task competence, (ii) openness and (iii) responsiveness.

#### *Task Competence*

To establish trust in the virtual setting, leaders had first to evaluate whether subordinates could adequately fulfil their job requirements. Typically, they would assign tasks, and over time, the trust would gradually develop contingent on the subordinate's performance. Leaders held predominantly functional and task-oriented expectations, anticipating high-performance standards from their team members. They wanted them to be accountable for their deliverables.

“The first thing that I would look for is their (subordinates) dedication because when we work virtually right, we need the person to be accountable for their deliverables....because it is not possible for a manager to sit on top of their heads and keep saying that...is this person doing this or not....so they have to be accountable for their work [P12, F3].”

The participants wanted their team members to exhibit core job responsibilities and extra-role behaviours, demonstrating proactiveness, initiative, and a sense of ownership. Additionally, leaders sought individuals who would willingly take on additional responsibilities. They valued subordinates who displayed curiosity and agility, showcasing a proactive approach to learning and adapting to evolving challenges.

#### *Openness*

Many participants valued open communication and expected team members to seek clarity, “speak up” and ask questions when needed so that everyone is on the same page. They emphasised the importance of an environment where concerns could be openly voiced, encouraging subordinates to share any apprehensions or uncertainties.

Also, some participants reflected that their ability to help out their subordinates depended on the subordinate's willingness to communicate openly. These leaders believed that for them to provide support or guidance effectively, it was crucial for subordinates to reciprocate by sharing their thoughts, challenges, and insights.

“If the person is not ready to try to open up....some things will not work out. You will not be able to help him much [P3, M2].”

#### *Responsiveness*

One crucial aspect mentioned by participants was their expectations from subordinates regarding the responsiveness of subordinates, which was particularly relevant in the virtual setting. Several respondents mentioned that their subordinates' availability, whenever required (through call, mail or text), affected their evaluations, like whether the person was reliable and could be trusted with more critical assignments. For example, one participant said that if a subordinate is not responsive, she would be “more careful” next time and give him tasks “that can be done easily” so that if anything falls apart, she would be “able to pick it up and do it.”

Participants reflected on their expectations from the team members to be flexible in terms of working hours. This need was heightened when there would be a crunch deadline; therefore, team members could be required to work beyond working hours.

“Virtually there would be sometimes when the person is not available and then sometimes...since we were doing this critical delivery, so our time, hours were quite extended. Sometimes, you know, very late evening, and we are trying to reach out to someone, and that person may or may not be available to take the call, maybe outside of the home [P3, M2].”

### **Nuances of Virtual Media**

This theme encompasses the myriad challenges of virtual media, as highlighted by participants in their experiences. The virtual environment often left the leaders grappling with uncertainties about their subordinates' reactions and underlying sentiments. We found participants reflecting on their experiences around three broad sub-themes – (i) behavioural ambiguity, (ii) extra effort, and (iii) lack of informal interactions.

#### *Behavioural Ambiguity*

The absence of visual elements, such as body language and facial expressions, compounded the complexity of communication. The absence of visual cues impeded gauging the full spectrum of emotions or intentions. One participant mentioned that virtual communication felt “mechanical”.

“...even though the camera is on and all that, it does not feel the same. It really does not feel the same when you can still get the body language and stuff, but it feels more mechanical. You really feel it mechanical; you are talking to a screen. [P8, M6].”

Some participants felt that having difficult conversations, such as giving critical feedback to subordinates, was particularly challenging in the virtual setup. One significant drawback mentioned was the lack of spontaneity inherent in virtual communication. Unlike face-to-face interactions, providing immediate feedback to subordinates was challenging, potentially hindering the real-time exchange of thoughts and ideas.

In virtual exchanges, the subtle nuances of language become significantly pronounced, where a single word choice can unintentionally convey tones or rudeness, potentially impacting relationships with subordinates.

“The probability that conflicts arise is more in virtual because, when you communicate face to face versus when you communicate, say, on a chat, if you use one word differently, it might sound rude to the other person, or it might sound insensitive to the other person [P6, F2].”

#### *Extra Effort*

Effective communication, which is of paramount importance in virtual teams, can be challenging. Participants mentioned the need for proactive efforts due to the absence of face-to-face interaction. Communication was required to be repeated to ensure clarity and understanding of the pain points within the team dynamic, which became more intricate.

“...the effort increases...the communication has to be repeated...and the outreach has to be repeated...because ...many times people will nod their heads and say yes, but with their body language you would understand that they are not aligned or they need more clarification because many times it is difficult to say no to a boss...the efforts increase the effectiveness decreases online [P5, M4].”

Building rapport in virtual teams takes time, as the lack of physical presence makes it harder to establish the personal connections that often facilitate smoother collaboration. One

participant mentioned that it took him three to four months to build rapport with subordinates, which could have been established within a month in a traditional setup.

Managers find themselves constrained in expressing ideas effectively to their teams, as the richness of in-person communication, with its visual and spontaneous elements, is challenging to replicate in the virtual landscape.

“In case a new or a bigger project would come, we would face difficulties in a virtual call...because I mean, as a manager, I am the kind of person who writes and likes to scribble a lot...I felt that I could not express myself more freely [P4, M3].”

#### *Lack of informal interactions*

The absence of informal interactions in virtual teams presents a significant challenge. With limited opportunities for discussions outside of work-related matters during breaks or after office hours, team members may lose touch and not feel connected to one another on a personal level.

“If I am in an office with my team members, we go out, have a cup of coffee and come back. We might discuss something which is absolutely unrelated to office work...so such discussions obviously we might not have when we are working virtually [P10, M8].”

The lack of casual conversations contributed to a sense of detachment from subordinates, as the informal bonds that typically develop in traditional office settings are harder to cultivate in the virtual realm.

#### **Navigating the complexities of the virtual environment**

In tackling the complexities presented by the online landscape, leaders adopted various strategies. Broadly, we describe them under three broad sub-themes (i) extensive communication, (ii) virtual interactive sessions, and (iii) being approachable.

##### *Extensive Communication*

Most participants described leveraging technology-based communication platforms such as Microsoft Teams, Slack and WhatsApp to communicate with their subordinates. Few of them mentioned the need to create certain norms pertaining to their online interactions, such as asking their team members to put their “videos on” during team calls. To facilitate the interactions and allow subordinates to engage more effectively, participants discussed using features of online platforms such as emoticons, emojis, smileys, etc.

“...there are many ways to express yourself like there are smileys and stuff like that, that kudos...claps and thumbs up...initially we did not have that in our calls, and I started doing it like if someone said something brilliant...I would start sending those emojis in the chat [P4, M3].”

Participants observed an increase in communication in the virtual set-up, such as a number of meetings. Also, some participants mentioned the need to monitor their subordinate's work more to ensure the tasks are completed on time. This was achieved by utilising technological tools such as "screen sharing" or "live dashboards" to gain insights into the progress of tasks. Transparency plays a vital role, with leaders proactively and regularly sharing expectations to ensure clarity and alignment within the team.

“In the virtual set-up, I would say it is...clear communication of targets, clear communication of the work and ensuring that whatever comes from the upper management or comes from the particular department is passed on to them, and then you have calls with them to make them understand [P5, M4].”

Some participants mentioned the need to supplement their online interactions with frequent physical meetings with subordinates.

“Probably once in a quarter or once half yearly, we meet in person in our specific location to, I mean in person, make sure that the bond is still intact [P9, M7].”

### *Interactive Sessions*

Participants reflected on the necessity of interactive sessions to foster bonding with subordinates. Finding creative ways of breaking the ice with new joiners was considered necessary by most participants. Many described the need for interactive sessions during new joiners' initial onboarding and socialisation.

“...everyone prepared one, just a small slide of themselves, purely informal...Like what I am about, what my likes, hobbies, and anything you want to tell the team, like my experience, anything ...you are given 3-4 minutes to talk. [P2, F1].”

Apart from new joiners, participants also shared the need to keep a process in place to keep interaction with their team members. Some of them referred to the concept of “Fun Fridays” and “Virtual Coffee Sessions”, where they would get on video calls and have informal discussions with subordinates on issues unrelated to work.

“So, we had this concept of fun Friday. Sometimes, we just got over a video call on Friday to connect with everyone, understand...anything apart from work, what they are interested in or what they are good at [P12, F3].”

### *Being Approachable*

Participants underscored the importance of being approachable and supportive. It was important for leaders to emphasise with their subordinates to understand their needs and take action as necessary. One effective approach to doing so was through one-on-one, often ad hoc meetings that helped leaders assess and address issues faced by subordinates, ranging from burnout to the need for new work or personal support.

“I will be having a one-on-one connect...in that...people started conveying their issues...like I am feeling a bit burnt out...I need different work...so those meetings helped [P2, F1].”

## **Discussion**

This study aimed to understand the experiences of leaders in developing LMX relationships in virtual teams. The findings of our study based on a sample of twelve respondents suggest that the experiences of leaders can be classified under three themes – leader's expectations from LMX relationships, nuances of the virtual environment, and navigating and adapting to the complexities of the virtual environment. Our findings corroborate previous research (e.g., Bell and Kozlowski, 2002; Dulebohn and Hoch, 2017) that has pointed out the challenges imposed by virtual teams on leadership processes. Our study participants reflected on the obstacles faced in developing LMX relationships online, such as the lack of non-verbal cues (e.g., body language, facial expression), difficulties in communication and managing conflicts. Liao (2017) suggested that virtual leaders need to play an active role in facilitating the development of relationships due to the limited amount of information available through computer-mediated tools. Similarly, our research indicates that virtual leaders must dedicate additional time to fostering relationships among remote team members and facilitating team processes. Prior research (Scandura and Graen, 1984) has found that leaders' actions can positively influence LMX relationships. Our research extends these findings to virtual teams. Our study showed that leaders can enhance LMX relationships through targeted interventions, even when communication is conducted electronically.

This research adds to the growing body of research (e.g., Paglis and Green, 2002; Uhl-Bien *et al.*, 2022; Zhou and Schriesheim, 2010), which explores LMX relationships from the leader's perspective. Zhou and Schriesheim (2010) found that leaders place greater emphasis on task-related aspects and consider them more significant when evaluating the overall quality of the LMX relationship. Similarly, Uhl-Bien *et al.* (2022) found that leaders' expectations from LMX differ from those of subordinates. Our study participants' descriptions of expectations from subordinates reflected high task orientation such as task competence, ability to handle the workload and manage complexity. Moreover, virtual leaders expect their subordinates to be flexible regarding working hours and ensure availability whenever required. Researchers have consistently found that managers' expectation of subordinates transcends mere compliance to a prescribed role (e.g., Graen and Uhl-Bien, 1995). Similarly, participants in our study expected their subordinates to display extra-role behaviours such as taking the initiative, showing proactiveness and going the extra mile.

Balthazard *et al.*'s (2009) study on the emergence of transformational leaders in virtual teams shows that leaders compensate for the lack of non-verbal cues in mediated communication. Their study found the extent and quality of communication through written media to be an essential factor in the emergence of transformational leadership in virtual teams. Social Information Procession theory (Walther, 1992) posits that when communicators are motivated to form relationships, they adapt their behaviours to the communication medium to form impressions and develop relationships with others. This theory assumes that different combinations of verbal and nonverbal cues can be used to convey messages and that some cues can substitute for others. The results of this study suggest that leaders form impressions about followers from non-verbal cues (e.g., responsiveness, availability, and video on or off during meetings). Further, our findings highlight that additional efforts (e.g., informal connects, one-on-one meetings, and an increase in communication frequency) are required from leaders to foster LMX relationships in virtual teams. Additionally, leaders need to find creative ways (e.g., emoticons in text messages and break-out rooms during Zoom calls) to substitute for face-to-face interactions in virtual teams.

### **Practical Implications**

This research has practical implications. Leaders can take several actions to improve their LMX relationships with subordinates in virtual teams. They can leverage technology to create opportunities for open communication and schedule frequent check-ins with team members. Leaders should regularly have informal meetings with their team members through video conferencing tools. They need to exhibit flexibility and provide support to accommodate team members' unique challenges and needs in virtual settings. Virtual leaders should use communication tools to provide recognition and feedback to their team members. They should proactively create opportunities for social interaction and team bonding in virtual settings, which can help overcome the potential sense of isolation in virtual environments. Leaders should supplement their online interactions with subordinates with frequent face-to-face sessions. Particularly, when new members join the team, leaders should ensure they meet them physically.

Training managers on establishing and maintaining LMX relationships in virtual settings can also be beneficial. Specifically, managers can be trained on the use of collaboration tools to help facilitate communication and collaboration between leaders and their teams in a virtual setting. Organisations should prioritise establishing suitable norms for virtual meetings to encourage interactions between leaders and managers. Finally, organisations can coach managers to emphasise work-life balance for their team by encouraging taking time off and maintaining a consistent working schedule.

### **Limitations and Future Research Agenda**

This study has several limitations. This study was based on the experiences of a limited sample of managers with prior working experience in managing virtual teams. More research should be done using a larger representative sample to generalise our findings. Most of the participants in the study were mid-level managers. Future research should consider the perspective of senior leadership. Our interviews were cross-sectional in nature. However, LMX relationships develop over a period of time (e.g., Scandura and Meuser, 2022). Thus, longitudinal studies can provide a more holistic understanding of LMX development in virtual teams. The team members of participants in our sample were all based out of India. Thus, the aspect of temporal dispersion, one of the salient features of global virtual teams (Bell and Kozlowski, 2002; Kirkman *et al.*, 2004), was absent in our sample. Scholars can investigate the impact of temporal dispersion on LMX relationships. Based on leaders' experiences, our study is just one side of the coin. Further research should consider the perspective of subordinates and leader-follower dyads in virtual teams.

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### Appendix I (Demographic Information of Participants)

| Participant Code | Age | Sex    | Industry        | Total Work Experience (Years) | Experience as Manager (Years) | Experience in Handling Virtual Teams (Years) | Interview Duration (In Minutes) |
|------------------|-----|--------|-----------------|-------------------------------|-------------------------------|----------------------------------------------|---------------------------------|
| P1, M1           | 29  | Male   | Energy & Power  | 7.8                           | 6.8                           | 2                                            | 57.53                           |
| P2, F1           | 28  | Female | ITES            | 6                             | 2.3                           | 2                                            | 66.42                           |
| P3,M2            | 40  | Male   | SAAS Technology | 17                            | 6                             | 2                                            | 62.24                           |
| P4,M3            | 31  | Male   | Automobile      | 5.5                           | 2                             | 2                                            | 64.62                           |
| P5,M4            | 31  | Male   | E Commerce      | 8                             | 4                             | 1.5                                          | 34.36                           |
| P6,F2            | 29  | Female | Consulting      | 6.5                           | 3                             | 1                                            | 53.05                           |
| P7,M5            | 28  | Male   | EdTech          | 6                             | 4                             | 1.5                                          | 64.52                           |
| P8, M6           | 35  | Male   | Software        | 14                            | 4                             | 1.5                                          | 40.02                           |
| P9, M7           | 27  | Male   | ITES            | 6                             | 4                             | 4                                            | 25.2                            |
| P10, M8          | 29  | Male   | ITES            | 5                             | 2                             | 2                                            | 58.33                           |
| P11, M9          | 27  | Male   | Automotive      | 6                             | 3                             | 3                                            | 30.33                           |
| P12, F3          | 40  | Female | ITES            | 16                            | 2.5                           | 2.5                                          | 28.25                           |

## **Appendix – II (Interview Protocol)**

- Please describe your job role.
- What proportion of your team is geographically dispersed?
- What communication technologies do you use most frequently with your team members?
- What is the frequency of communication with your team members?
- Can you describe the process of establishing norms with your team members?
- What do you look for while hiring someone in the team?
- What steps do you take for the socialisation of new team members?
- How do you evaluate team members' performance?
- How do you understand your team members' work-related problems and needs?
- How often do you share performance feedback with your team members?
- Have you ever been in a situation where you had to defend your team members' actions to your seniors?
- How do you manage conflict with team members?
- What do you do to enhance teamwork?
- Can you describe one working relationship with a team member in detail, such as how it started and some pivotal moments during the relationship?

### Appendix III (Data Structure)

| Overarching Themes                                     | Sub - Themes                  | Exemplar Quotes                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Leader's Expectations from LMX Relationships           | Task competence               | "I would always want my team members to take ownership of the task which they have been assigned...they are taking up more responsibility...and more ownership in terms of maybe taking up more projects...I would want the person to overperform and overdeliver [P5, M4]"                                                                                                   |
|                                                        | Openness                      | "...to ensure that somebody is speaking up if they feel they have an opinion that matters...how do they want to resolve a conflict because a lot of times there is a difference of opinion but how we take it up and what we do to ensure that we are on the same page [P6, F2]"                                                                                              |
|                                                        | Responsiveness                | "Responsiveness was an additional attribute that you know because it gives....the reliability kind of a factor...you know you are available whenever required, right...if you are responsive....you are not responding on calls or texts, that was an additional factor [P3, M2]."                                                                                            |
| Nuances of Virtual Setting                             | Behavioural ambiguity         | "I do not know how this person is going to react at times...I do not know the behaviour of this person...I do not know what exactly is going through at times...You know that is one challenge, and you always have to be sensitive about that matter [P12, F3]."                                                                                                             |
|                                                        | More effort                   | "Basically, virtual environments, you know, involve you to put in more effort, be it manager, team lead or other team members. So, everybody has to put in a little more effort than they would in a physical system because in a physical setup, your physical proximity, so you end up talking to people, you end up interacting with them [P6, F2]."                       |
|                                                        | Lack of informal interactions | "I think it is beyond office hours sometimes, or when you travel together these sorts of things you start to...and even online setup made a difference. I mean both those options were cut because there is no traveling so that is gone and in an online setup it was rarely an occasion where you know someone is staying back on a zoom call after six [P4, M3]."          |
| Navigating the complexities of the virtual environment | Extensive communication       | "So primarily communication used to happen through Slack...any instant messaging through Slack...and other than that, we had created some bit of WhatsApp groups for different teams and some bit on emails like...you know primarily with the clients not within the team...slack was heavily used, and outside of office hours it would generally be on WhatsApp [P3, M2]." |
|                                                        | Interactive sessions          | "We used to have virtual coffee sessions or to interact informally to, I mean emotionally bond with the team members and make sure that every member of the team has a good relationship with the other person and also we used to have virtual town hall where they issue, raise concerns [P9, M7]."                                                                         |
|                                                        | Being approachable            | "It would be more of one-to-one conversations... it is very frequent. It was not a very planned kind of daily conversation. [P3, M2]."                                                                                                                                                                                                                                        |